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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ulf Bjorkman

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EXAMINER

CARLOS, ALVIN LEABRES

ART UNIT

PAPER NUMBER

3715

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,452	Applicant(s) BJORKMAN ET AL.	
	Examiner ALVIN L. CARLOS	Art Unit 3715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 4, 2009 has been entered.

2. The following is a Non-Final Office action in response to communications received June 4, 2009. Claims 1-3, 5, 8-9, 11-16, 18-19, 22 and 24-27 have been amended. Claims 1-27 are now pending.

Claim Objections

3. Claim 9 is objected to because of the following informalities: Claim 9 recites "at least one of the at least one target comprises" is believed to be in error for -- at least one target comprises --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3715

5. Claims 1-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Varshneya 6386879.

6. The claim limitations mentioned below uses a "means plus function limitation" that invokes 35 U.S.C. 112, sixth paragraph.

"means for including information in the electromagnetic waves" is described in the specification as laser and radio transmitter.

"means for determining a geographical position of the weapon" is described in the specification as (GPS) program.

"means for determining whether a target has been hit based on the received electromagnetic waves" is described in the specification as laser or radio receiver.

Re claim 1, Varshneya discloses a weapon effect simulation system (see figures 1A-1B, column 1 lines 5-8), comprising a weapon 12 comprising a fire simulation system comprising a transmitter configured to transmit electromagnetic waves from a weapon to simulate real ammunition from the weapon and means for including information in the electromagnetic waves (see figure 1B, column 2 lines 55-59), and a calculating unit configured to calculate an imagined trajectory of the simulated ammunition and means for determining a geographical position of the weapon, and information in the electromagnetic waves is operative to include in the electromagnetic waves information related to coordinates in the three-dimensional space for the calculated ammunition trajectory (see figures 1A-B, column 2 lines 13-20), and at least one target comprising a hit simulation system comprising a receiver configured to receive the transmitted electromagnetic waves (see figures 1A-B, column 2 lines 40-45).

Art Unit: 3715

and means for determining whether a target has been hit based on the information in the received electromagnetic waves (see figures 1A-B, column 4 lines 58-67 and column 5 lines 1-10).

Re claim 2, Varshneya discloses the transmitter comprising a laser transmitter 28 operative to transmit laser radiation with at least one beam lobe (see figure 1B, column 2 lines 55-62).

Re claim 3, Varshneya discloses the transmitter comprising a radio transmitter operative to transmit radio waves (column 3 lines 4-14).

Re claim 4, Varshneya discloses the means for determining whether the target has been hit is operative to determine target hits based primarily on the information in the laser radiation and secondarily on the information in the radio waves (column 2 lines 55-67 and column 3 lines 1-14).

Re claim 5, Varshneya discloses transmitter comprising a radio transmitter operative to transmit radio waves (column 3 lines 4-14).

Re claim 6, Varshneya discloses the means for including information in the electromagnetic waves is operative to continuously include, based on the calculated trajectory, information concerning the current trajectory position of the simulated ammunition (column 3 lines 15-24).

Re claim 7, Varshneya discloses the means for including information in the electromagnetic waves is operative to including information concerning the trajectory positions of the simulated ammunition during a period of time that is shorter than the

Art Unit: 3715

flight time of the real ammunition and based on the calculated trajectory (column 4 lines 32-57).

Re claim 8, Varshneya discloses the calculating unit is operative to determine an impact point or burst point of the ammunition, and the information related to the calculated ammunition trajectory contains the impact point or burst point (column 4 lines 58-67 and column 5 lines 1-10).

Re claim 9, Varshneya discloses the fire simulation system comprising a transmitter operative to transmit information regarding the geographical position of the weapon, and at least one of the target comprising a hit simulation systems comprising a receiver operative to receive said position data (column 2 lines 55-67 and column 3 lines 1-14).

Re claim 10, Varshneya discloses the information related to the calculated ammunition trajectory is determined relative to the geographical position of the weapon (column 2 lines 55-67 and column 3 lines 1-14).

Re claim 11, Varshneya discloses hit simulation system comprising means for determining the geographical position of the target (column 4 lines 16-31).

Re claim 12, Varshneya discloses at least one of the targets comprising a hit system comprising a transmitter, and wherein the fire simulation system comprises a receiver operative to receive information from the transmitter of the hit simulation system (column 2 lines 55-67 and column 3 lines 1-14).

Art Unit: 3715

Re claim 13, Varshneya discloses the transmitter of the hit simulation system is operative to transmit information regarding the geographical position of the target (column 4 lines 43-47).

Re claim 14, Varshneya discloses the calculating unit is operative to determine which target has been hit, and information related to the calculated ammunition trajectory includes information that identifies the determined target (column 4 lines 32-57).

Re claim 15, Varshneya discloses the transmitter of the hit simulation system is operative to transmit a hit message upon determination of a hit (column 4 lines 58-67 and column 5 lines 1-10).

Re claim 16, Varshneya discloses a receiver for a hit simulation system that has not determined a hit act as a secondary object and is operative to receive the transmitted hit message (column 5 lines 3-10).

Re claim 17, Varshneya discloses the means of the secondary object for determining hits is operative to decide upon receiving hit messages whether the secondary object has been hit (column 4 lines 58-67 and column 5 lines 1-10).

Re claim 18, Varshneya discloses the transmitter is operatively connected with the receiver of the fire simulation system and is operative to break off the simulation upon receiving the hit message (column 4 lines 58-67 and column 5 lines 1-10).

Re claim 19, Varshneya discloses the fire simulation system comprising a display configured to display hit locations and effects based on received hit messages (column 5 lines 6-10).

Re claim 20, Varshneya discloses the display is operative to display hit locations and effects visually (column 5 lines 6-10).

Re claim 21, Varshneya discloses the fire simulation system is disposed at a weapon (see figure 1A, column 2 lines 57-59).

Re claim 22, Varshneya discloses the means operative to determine the geographical position of the weapon has a geographical position that is separate from the geographical position of the transmitter (column 2 lines 55-67 and column 3 lines 1-4).

Re claim 23, Varshneya discloses hit simulation system is disposed in connection with a respective target (see figure 1A, column 4 lines 16-31).

Re claim 24, Varshneya discloses the means for determining whether a target has been hit is operative to determine a hit location on the target (column 4 lines 58-67 and column 5 lines 1-10).

Re claim 25, Varshneya discloses wherein the means of the hit simulation system for determining whether a target has been hit are operatively connected with the transmitter of the fire simulation system and operative to break off the simulation if a hit is determined corresponding to damage or injury that renders continued firing impossible (column 4 lines 32-67 and column 5 lines 1-10).

Re claim 26, Varshneya discloses a fire simulation system for weapon effect simulation systems (column 2 lines 3-20), comprising a transmitter configured to transmit electromagnetic waves for simulating ammunition from a weapon and means for including information in the electromagnetic waves operative to include information

Art Unit: 3715

related to coordinates in the three-dimensional space for the calculated ammunition trajectory (see figure 1B, column 2 lines 55-65), a calculating unit configured to calculate the imagined trajectory of the ammunition (see figures 1A-B, column 2 lines 13-20), and means for determining the geographical position of the weapon (column 4 lines 55-67 and column 5 lines 1-10).

Re claim 27, Varshneya discloses a method for simulating the effect of a weapon on one or more potential targets (column 1 lines 1-4), comprising calculating with the weapon the imagined trajectory of the simulated ammunition (see figures 1A-B, column 2 lines 13-20), modulating with information electromagnetic waves for simulating ammunition from the weapon (column 2 lines 3-6), information related to coordinates in the three-dimensional space for the calculated ammunition trajectory (column 2 lines 55-67 and column 3 lines 1-4), transmitting from the weapon the modulated electromagnetic waves for reception by the potential targets (column 4 lines 16-31), making a determination with the targets upon reception of the electromagnetic waves for each respective target as to whether the target has been hit, based on the received electromagnetic waves (column 4 lines 32-67 and column 5 lines 1-10).

Response to Arguments

7. Applicant's arguments filed June 04, 2009 have been fully considered but they are not persuasive.

8. In response to applicant's arguments that Varshneya does not disclose "a system that includes a fire simulation system that calculates an imagined trajectory of the simulated ammunition includes information in electromagnetic waves information related

Art Unit: 3715

to coordinates in three-dimensional space for the calculated ammunition trajectory, and at least one target that includes a hit simulation system that determines based on the information in the electromagnetic waves whether a target has been hit", the Examiner disagrees. Varshneya discloses a gunnery simulation system that provide a more precise gunnery training system that takes advantage of GPS locators and has improved capabilities and flexibilities to further enhance the realism of the tank gunnery training exercise in complex tactical situations. In addition, Varshneya positively discloses "the ballistic simulation is run at the target tank 14 and DGPS is used for target tracking. The use of an RF data link and GPS leads to much lower cost than prior art gunnery simulator systems. The system can be used in either in fire and forget or tracking modes. Its hit/miss accuracy is improved over that of prior gunnery simulation systems because of a faster scan rate and because DGPS tracking of the target tank 14 is independent of shot fly-out time. The system can be used to train in normal, degraded, manual and emergency modes. The user follows the same operational steps involved in firing on a tank with a live round in a combat situation. The system and method accommodate multiple shooters and multiple targets. The range to target generates gun super EL offset. The target is tracked to generate gun lead offset. The system is capable of determining the impact point (or miss perigee) with respect to the center of mass of the target tank. A weapon fly-out tracer is displayed to the shooter and provides immediate feedback. Realistic Pk and casualty assessment are performed. The system and method disseminate engagement results in near real time. Engagement exercises can be recorded to support diagnostic AAR. Shooters and

Art Unit: 3715

targets are unambiguously paired” (column 5 lines 23-45). Furthermore, Varshneya discloses a gunnery simulation system that utilizes GPS and DGPS that determines a range to the target by comparing a set of GPS coordinates of the gun and the target. Based on the target azimuth, the target elevation, the range to the target and the time of the trigger pull the system control unit computes an impact point relative to the target of a simulated ballistic shell fired from the gun at the time of the trigger pull (see figures 1A-1B, column 2 lines 2-20).

9. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., any realistic simulation of ammunition that is guided by the gunner or observer/forward observer, where the trajectory of the ammunition can be corrected after firing and realistically simulate weapons with which a gunner can switch targets during the flight of the ammunition by adjusting the trajectory with a joystick) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as per the attached Notice of References Cited.

Art Unit: 3715

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALVIN L. CARLOS whose telephone number is (571)270-3077. The examiner can normally be reached on 7:30am-5:00pm EST Mon-Fri (alternate Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xuan Thai can be reached on (571)272-7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alvin L Carlos/
Examiner, Art Unit 3715
June 19, 2009

/Cameron Saadat/
Primary Examiner, Art Unit 3715